

REMARKS

Claims 1-23 were presented for examination. Reconsideration is respectfully requested.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter, i.e. the "undoped nanocrystals" of Claim 1. While the term "undoped" was not explicitly used in the spec, it is clear that the nanocrystals are undoped since there is no mention whatsoever of doping, and color is controlled by size so there would not be any dopant present which would control color. Therefore, Applicant has merely recited explicitly what is implicit in the disclosure. It is also clear from MPEP 608.01(o) that "While an applicant is not limited to the nomenclature used in the application as filed, he or she should make appropriate amendment of the specification ... so as to have clear support or antecedent basis in the specification for the new terms appearing in the claims." Thus a new paragraph is added on page 4 to explicitly state that the nanocrystals are undoped. No new matter is added since it is clear that the original disclosure supports undoped nanocrystals.

Claims 1, 14-15 are rejected under 35 USC 102(b) as anticipated by Bhargava I (USPN 5,455,489). This rejection is respectfully traversed.

Claims 2-13, 20-23 are rejected under 35 USC 103(a) over Bhargava I in view of Yagyu. This rejection is respectfully traversed.

Claims 2-3, 17-19 are rejected under 35 USC 103(a) over Bhargava I in view of Jaskie. This rejection is respectfully traversed.

Claim 16 is rejected under 35 USC 103(a) over Bhargava I in view of Bhargava II (USPN 5,422,489). This rejection is respectfully traversed.

The primary reference for all the rejections is Bhargava I which, as previously described, shows displays based on doped nanocrystal (DNC) phosphors (see title; abstract; col. 1, lines 61-67; col. 2, lines 1-31). The nanocrystal is a host, col. 5, lines 14, 55. The color is determined by the dopant, e.g. Mn for yellow, Tm for blue, Tb for green, and Eu for red, col. 2, lines 8-25; col. 4, lines 8-19; col. 5, lines 26-27. Fig. 1 shows band diagrams for five rare earth dopants. The nanocrystal size affects the efficiency of the dopant emission, not its color, Fig. 3; col. 2, lines 50-52; col. 5, lines 40-43.

By contrast, Applicant uses just the nanocrystals themselves, i.e. undoped nanocrystals, and the size of the nanocrystal determines the color, i.e. the color is produced by selecting nanocrystals of the right size to produce that color.

The Examiner states that Bhargava I "describes the preparation of undoped nanocrystals (col. 4, ln. 60-61)." In the Response to Arguments, paragraph 31 on page 8 of the action, the Examiner states that Bhargava I "discloses that undoped nanocrystals may be used in the invention (col. 4, ln. 60-63)."

The Examiner has totally mischaracterized Bhargava I as to the presence of any teaching of the use of undoped nanocrystals in the invention. While certain references to making undoped nanocrystals are cited, col. 4, lines 59-63 in their entirety make it clear that only doped nanocrystals are used in the invention and that undoped nanocrystals are not used: "It will be appreciated that the referenced publications, except for references [4]-[6], describe the preparation of undoped nanocrystals, but the same techniques with the modification described in references [4]-[6] can be used to make the doped nanocrystals used in the invention."


Thus Bhargava I actually states that while techniques to make undoped nanocrystals are known, they must be modified as shown in the references to make doped nanocrystals, to make the doped nanocrystals used in the invention. There is no suggestion whatsoever of the use of undoped nanocrystals in the invention.

Applicant's Claim 1 recites undoped nanocrystals where the nanocrystal sizes determine the color. Neither of these features are found in Bhargava I. To support a proper 102 rejection, each feature and limitation in the claims must be found in the reference. Since the features and limitations of base Claim 1 are not taught or suggested by Bhargava I, Claim 1 is deemed allowable, and all dependent claims should also be patentable. Therefore it is submitted that all the rejections have been obviated.

New Claims 21-23 have been added to explicitly recite the feature that light of a single wavelength can be used to excite the nanocrystals of all colors.

Respectfully submitted,

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